

C L A I M S

1. A device for blocking an optical lens,
2 comprising a lens holding tool to which the optical lens
3 is to be fixed through a bonding agent, characterized by
4 comprising:
5 a loading table on which the optical lens is
6 to be placed with a concave surface thereof facing up;
7 a centering device which causes a geometric
8 center of the optical lens to coincide with a center of
9 said loading table;
10 a dripping device which drips the bonding
11 agent onto the concave surface of the optical lens; and
12 a moving device which moves the optical lens
13 to a block position of said lens holding tool.
2. A device for blocking an optical lens
2 according to claim 1, characterized in that
3 said centering device comprises a plurality of
4 pins which are movable in a radial direction and a
5 circumferential direction of said loading table and
6 press a peripheral surface of the optical lens,
7 each of said pins comprising a locking portion
8 at an upper end thereof which locks a peripheral edge of
9 the optical lens on a concave surface side.
3. A device for blocking an optical lens
2 according to claim 1, characterized in that said
3 centering device comprises a clamp base which surrounds

4 said loading table, a rotary base which is rotatably
5 built into said clamp base, a driving device which
6 pivots said rotary base, a plurality of stationary
7 shafts which project on said clamp base, a plurality of
8 clamp members which are pivotally supported by said
9 stationary shafts, respectively, a plurality of moving
10 shafts which project on said rotary base and extend
11 through respective elongated holes in said clamp members
12 and pivot said clamp members respectively toward said
13 loading table during centering of the optical lens, and
14 a plurality of pins which respectively project on said
15 clamp members and press a peripheral surface of the
16 optical lens during centering.

4. A device for blocking an optical lens
2 according to claim 2, characterized in that
3 said loading table is swingably supported by
4 support means, and
5 said moving device moves said loading table
6 upward to move the optical lens upward along said pins
7 so as to move the optical lens to the block position.

5. A device for blocking an optical lens
2 according to claim 1, characterized by further
3 comprising a gap setting device which moves said lens
4 holding tool and the optical lens in directions to
5 relatively approach each other to set a predetermined
6 gap therebetween, so that the binding agent is spread.

6. A device for blocking an optical lens

2 according to claim 5, characterized in that a dripping
3 amount of bonding agent to be dripped by said dripping
4 device onto the optical lens is calculated from at least
5 one of a thickness of a peripheral edge portion of the
6 bonding agent after spreading, a diameter of said lens
7 holding tool, a radius of curvature of a blocking
8 surface, a diameter of the optical lens, a radius of
9 curvature of the concave surface, and a gap between said
10 lens holding tool and the optical lens.

7. A device for blocking an optical lens

2 according to claim 5, characterized in that a gap d in a
3 vertical direction between a peripheral portion of a
4 blocking surface of said lens holding tool and a
5 peripheral portion of the optical lens on a concave
6 surface side is calculated by the following equation:

7
$$d = -\sqrt{R^2 - \frac{LDb^2}{4}} + \sqrt{R^2 - \frac{YDh^2}{4}}$$

8 where R is the radius of curvature of the concave
9 surface of the optical lens, LDb is the diameter of the
10 optical lens, and YDh is the diameter of said lens
11 holding tool.

8. A device for blocking an optical lens

2 according to claim 5, characterized in that a dripping
3 amount Q of bonding agent is calculated by the following
4 equation:

$$Q = \pi T_e D h^2 + \pi \left[-\frac{1}{3} (R - \sqrt{R^2 - D h^2})^3 + R (R - \sqrt{R^2 - D h^2})^2 \right] \\ - \pi \left[-\frac{1}{3} (C h - \sqrt{C h^2 - D h^2})^3 + C h (C h - \sqrt{C h^2 - D h^2})^2 \right]$$

where T_e is the thickness of the peripheral portion of the bonding agent after spreading, $C h$ is the radius of curvature of a blocking surface of said lens holding tool, R is the radius of curvature of the concave surface of the optical lens, and $2 D h$ is the diameter of the bonding agent after spreading.

9. A device for blocking an optical lens according to claim 5, characterized in that a dripping amount of bonding agent is calculated by the following equation:

$$Q = \pi (T_c + \sqrt{R^2 - D h^2} - \sqrt{C h^2 - D h^2}) D h^2 \\ + \pi \left[-\frac{1}{3} (R - \sqrt{R^2 - D h^2})^3 + R (R - \sqrt{R^2 - D h^2})^2 \right] \\ - \pi \left[-\frac{1}{3} (C h - \sqrt{C h^2 - D h^2})^3 + C h (C h - \sqrt{C h^2 - D h^2})^2 \right]$$

where T_c is the thickness of a center of the bonding agent after spreading, $2 D h$ is the diameter of the bonding agent after spreading, $C h$ is the radius of curvature of a blocking surface of said lens holding tool, and R is the radius of curvature of the concave surface of the optical lens.

10. A device for blocking an optical lens according to claim 1, characterized in that said dripping device comprises a gear pump which supplies the bonding agent, a driving device which drives said gear

5 pump intermittently, and a dripping device which drips
6 the bonding agent supplied by said gear pump onto the
7 concave surface of the optical lens.

11. A method for blocking an optical lens, of
2 interposing a molten bonding agent between the optical
3 lens and a lens holding tool and letting the molten
4 bonding agent to solidify so as to fix the optical lens
5 to the lens holding tool, characterized by comprising
6 the steps of:

7 dripping the bonding agent onto a concave
8 surface of the optical lens;

9 urging the lens holding tool against the
10 bonding agent on the optical lens to spread the bonding
11 agent so as to hold the lens holding tool and the
12 optical tool at a predetermined gap; and

13 cooling the bonding agent to solidify so as to
14 integrally bond the lens holding tool and the optical
15 lens.